AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application.

Listing of Claims:

1-39 (Cancelled)

40. (Currently Amended) A method of preparing a bioceramic composition, comprising the following steps:

a) dry mixing powders of a calcium phosphate and a promoter;

b) prior to hydration of said dry powders prepared in step (a), pressing said dry powders to form a compressed object of a predetermined shape; and

c) hydrating said compressed object of step (b) to form a reaction product, said reaction product comprising a poorly crystalline apatitic calcium phosphate.

41. (Cancelled)

42. (Currently Amended) A composite material, comprising:

a strongly bioresorbable, poorly crystalline apatitic calcium phosphate having a calcium to phosphate ratio (Ca/P) of less than 1.5 in contact with a biocompatible supplemental material,

wherein said supplemental material is a bioresorbable material selected from the group consisting of silk, demineralized bone matrix, hyaluronic acid and derivatives thereof, ~~polyanhydrides,~~ polyorthoesters, polyglycolic acid, polylactic acid, and copolymers thereof, polyesters of α-hydroxycarboxylic acids, poly(L-lactide) (PLLA), poly(D,L-lactide) (PDLLA),

polyglycolide (PGA), poly(lactide-co-glycolide (PLGA), poly(D,L-lactide-co-trimethylene carbonate), and polyhydroxybutyrate (PHB), polyanhydrides, poly(anhydride-co-imide), and ~~and~~ co-polymers thereof, and bioactive glass compositions;

a non-bioresorbable material selected from the group consisting of dextrans, polyethylene, polymethylmethacrylate (PMMA), carbon fibers, polyvinyl alcohol (PVA), poly(ethylene terephthalate)polyamide, bioglasses, ~~calcium sulfate,~~ and calcium phosphates;

a lubricant selected from the group consisting of silicone oil, polymer waxes, lipids, and fatty acids; or

a radiographic material; and

wherein said supplemental material is present in an amount effective to impart a characteristic selected from the group consisting of strength, resorption time, adherence, frictional characteristics, release kinetics, tensile strength, hardness, fracture toughness, elasticity, and imaging capability to said composite.

43. (Currently Amended) A bioceramic composition comprising:

a compressed powder object of a predetermined shape,

said compressed powder object comprising dry powders of a calcium phosphate and a promoter,

wherein said promoter is selected to promote conversion of said calcium phosphate into a strongly bioresorbable, poorly crystalline apatitic calcium phosphate.

44-102 (Cancelled)

103. (Currently Amended) A method for treating a bone defect comprising:

identifying a bone site for receiving an implant;

introducing a compressed powder object at the bone site, said compressed powder object comprising dry powders of a calcium phosphate and a promoter and having approximately the shape required for repair of the bone defect,

whereby said compressed powder object is converted *in vivo* upon hydration at the implantation site into a strongly bioresorbable poorly crystalline apatitic calcium phosphate.

104-110 (Cancelled)

111. (Currently Amended) The method of claim 40, wherein following said hydrating said compressed object hardens in ~~is characterized by~~ an endothermic reaction.

112. (Previously Presented) The method of claim 40, wherein said hydrating further comprises incubating the compressed object at about 37 °C.

113. (Previously Presented) The method of claim 40, wherein said hydrating is carried out *in vivo*.

114. (Previously Presented) The method of claim 40, wherein said hydrating comprises using a hydration medium to hydrate said compressed object,

wherein said hydration medium is selected from the group consisting of physiological fluids, serum culture medium, and tissue culture medium.

115. (Previously Presented) The method of claim 40, further comprising lyophilizing said reaction product.

116. (Previously Presented) The method of claim 40, further comprising contacting said powders with a biologically active agent.

117. (Previously Presented) The method of claim 116, wherein said biologically active agent is selected from the group consisting of antibiotics, bone morphogenic protein, bone regenerative proteins, and vaccines.

118. (Currently Amended) The method of claim 40, wherein said promoter is selected from the group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphates, calcium pyrophosphate dihydrate, crystalline hydroxyapatite, PCA calcium pyrophosphate, monetite, octacalcium phosphate, CaO, $CaC0_3$, calcium acetate, and $\underline{H_3PO_4}$ ~~H_2PO_4~~, and amorphous calcium phosphate.

119. (Previously Presented) The method of claim 40, wherein said promoter comprises dicalcium phosphate dihydrate (DCPD).

120. (Previously Presented) The method of claim 40, further comprising the step of mixing a supplemental material with said powders.

121. (Previously Presented) The method of claim 120, wherein said supplemental material is demineralized bone.

122. (Previously Presented) The method of claim 40 wherein said poorly crystalline apatitic (PCA) calcium phosphate has an X-ray diffraction pattern comprising broad peaks at 2θ values of 26°, 28.5°, 32°, and 33°.

123. (Previously Presented) The method of claim 40, wherein said poorly crystalline apatitic (PCA) calcium phosphate is further characterized in that when at least one gram of said poorly crystalline apatitic (PCA) calcium phosphate is implanted at a rat intramuscular site, at least 80% of said poorly crystalline apatitic (PCA) calcium phosphate is resorbed within one year.

124. (Previously Presented) The method of claim 40, wherein said calcium phosphate comprises amorphous calcium phosphate.

125. (Currently Amended) The composition ~~method~~ of claim 43, wherein said poorly crystalline apatitic (PCA) calcium phosphate is further characterized in that when at least one gram of said strongly bioresorbable, poorly crystalline apatitic (PCA) calcium phosphate is

implanted at a rat intramuscular site, at least 90% of said strongly bioresorbable, poorly crystalline apatitic (PCA) calcium phosphate is resorbed within one year.

126. (Previously Presented) The composition of claim 43, wherein said calcium phosphate comprises amorphous calcium phosphate.

127. (Previously Presented) The composition of claim 43, wherein said object further comprises a hydration medium to hydrate the object.

128. (Previously Presented) The composition of claim 127, wherein said hydration medium is selected from the group consisting of physiological fluids, serum culture medium, and tissue culture medium.

129. (Currently Amended) The composition of claim 43 ~~127~~, wherein said conversion is characterized by an endothermic reaction.

130. (Previously Presented) The composition of claim 43, further comprising a biologically active agent.

131. (Currently Amended) The composition of claim 130, wherein said biologically active agent is selected from the group consisting ~~consisiting~~ of antibiotics, bone morphogenic protein, bone regenerative proteins, and vaccines.

132. (Previously Presented) The composition of claim 43, wherein said promoter comprises dicalcium phosphate dihydrate (DCPD).

133. (Currently Amended) The composition of claim 43, wherein said promoter is selected from the group consisting of calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, tricalcium phosphates, calcium pyrophosphate dihydrate, crystalline hydroxyapatite, PCA calcium phosphate, calcium pyrophosphate, monetite, octacalcium phosphate, CaO, $CaC0_3$, calcium acetate, H_3PO_4 ~~H_2PO_4~~, and amorphous calcium phosphate.

134. (Previously Presented) The composition of claim 43, further comprising a supplemental material.

135. (Currently Amended) The composition of claim 134, wherein said supplemental material is demineralized bone matrix.

136. (Previously Presented) The composition of claim 127, wherein said poorly crystalline apatitic calcium phosphate has an x-ray diffraction pattern comprising broad peaks at 2θ values of 26° , 28.5° , 32° and 33°.

137. (Previously Presented) The composition of claim 127, wherein said poorly

crystalline apatitic calcium phosphate is further characterized in that when at least one gram of said strongly bioresorbable, poorly crystalline apatitic (PCA) calcium phosphate is implanted at a rat intramuscular site, at least 90% of said strongly bioresorbable, poorly crystalline apatitic (PCA) calcium phosphate is resorbed within one year.

138. (Currently Amended) A method of preparing a bioceramic implant composition, comprising:

mixing powders of a calcium phosphate and a promoter selected from calcium metaphosphate, dicalcium phosphate dihydrate, heptacalcium decaphosphate, calcium pyrophosphate dihydrate, poorly crystalline apatitic (PCA) calcium phosphate, calcium pyrophosphate, monetite, octacalcium phosphate, CaO, calcium acetate, H_3PO_4 ~~H_2PO_4~~, and amorphous calcium phosphate in a hydrating medium to form a paste, said promoter selected to convert the mixed powders into a poorly crystalline apatitic calcium phosphate;

introducing said paste into a mold that approximates a desired implant shape ~~of a predetermined shape~~; and allowing said paste to harden ~~to thereby obtain a poorly crystalline apatitic calcium phosphate article of a predetermined shape~~.

139. (Previously Presented) The method of claim 138, further comprising incubating said paste at about 37° C.

140. (Previously Presented) The method of claim 138, wherein said hydrating medium is selected from the group consisting of water, physiologically acceptable pH-buffered solutions,

saline solution, serum culture medium, and tissue culture medium.

141. (Previously Presented) The method of claim 138, further comprising lyophilizing said article.

142. (Previously Presented) The method of claim 138, further comprising contacting said powders with a biologically active agent.

143. (Previously Presented) The method of claim 142, wherein said biologically active agent is selected from the group consisting of antibiotics, bone morphogenic protein, bone regenerative proteins, and vaccines.

144. (Cancelled)

145. (Previously Presented) The method of claim 138, further comprising the step of adding a supplemental material to said mixed powders.

146. (Currently Amended) The method of claim 145, wherein said supplemental material is demineralized bone matrix.

147. (Previously Presented) The method of claim 138, wherein said poorly crystalline apatitic calcium phosphate (PCA) has an x-ray diffraction pattern comprising broad peaks at 2θ

values of 26°, 28.5°, 32° and 33°.

148. (Previously Presented) The method of claim 138, wherein said calcium phosphate comprises amorphous calcium phosphate.

149. (Previously Presented) The method of claim 40, wherein said powders are compressed using a hydraulic press.

150. (Previously Presented) The method of claim 40, wherein said powders are compressed under a pressure in the range of about 500 psi to about 5000 psi.

151. (Previously Presented) The composition of claim 43, wherein said compressed powder object has a density ranging from about 1.2 g/cm^3 to about 2.0 g/cm^3.

152. (Previously Presented) The composite material of claim 42, wherein the supplementary material is in the form selected from the group consisting of a sponge, mesh, a film, a fiber, a gel, a filament, and a particle.

153. (Previously Presented) The composite material of claim 42, wherein said supplementary material is demineralized bone matrix.